DOCUMENT RESUME

ED 100 439 JC 750 068

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TITLE A Comparison of the Educational Success of GED Recipients and Traditional High School Graduates in Selected Areas at Wilkes Community College [North Carolina].
PUB DATE Dec 73
NOTE 58p.; Practicum presented to Nova University in partial fulfillment of the requirements for the Doctor of Education degree

EDRS PRICE MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS *Academic Achievement; *Adult Students; College Freshmen; College Mathematics; English; *Equivalency Tests; Grade Point Average; *High School Graduates; *Junior Colleges; Junior College Students; Reading Level
IDENTIFIERS *General Educational Development Tests

ABSTRACT

The purpose of this study was to determine whether there was a significant difference in the performance level of freshmen who did not formally complete high school but who received General Education Development (GED) certificates and high school graduates who did receive high school diplomas. The study was to indicate whether there was a difference in reading placement scores as measured by the Nelson-Denny Reading Ability Test, or in grade point averages in freshmen English or mathematics. Mean scores of 30 adult GED recipients and 50 randomly selected high school graduates enrolled at Wilkes Community College were analyzed. There was no significant difference in the three areas tested. GED and high school diploma recipients compared equally on the reading placement tests and in grade point averages in English and mathematics. The data indicated that the traditional high school graduate needs skill reinforcement at the same level as the GED recipient. (Author)

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A COMPARISON OF THE EDUCATIONAL SUCCESS OF GED RECIPIENTS AND TRADITIONAL HIGH SCHOOL GRADUATES IN SELECTED AREAS AT WILKES COMMUNITY COLLEGE

by

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A PRACTICUM PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF EDUCATION

NOVA UNIVERSITY

December 17, 1973

CS 000 [illegible]

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I. THE TITLE

A Comparison of the Educational Success of GED Recipients and Traditional High School Graduates in Selected Areas at Wilkes Community College

II. STATEMENT OF THE PROBLEM

The purpose of this study was to determine if there was a significant difference in the performance level of freshmen who did not formally complete high school but who received General Education Development (GED) certificates and the high school graduates who did receive high school diplomas. The study was to indicate whether (1) there was a difference in the reading placement scores of the GED recipients as compared to students who received high school diplomas, (2) there was a difference in grade-point averages in English 111 of the GED recipients as compared to students who received high school diplomas, (3) there was a difference in grade-point averages in Mathematics 111 of the GED recipients as compared to students who received high school diplomas.

III. HYPOTHESES

In comparing the performance level of freshmen who received the General Education Development certificate and those who received the high school diplomas, the following results were found: (1) There was no significant difference in the reading placement scores. (2) There was no significant difference in the grade-point average in English 111. (3) There was no significant difference in the grade-point average in Mathematics 111.

IV. THE BACKGROUND AND SIGNIFICANCE OF THE STUDY

The Handbook for Official GED Centers made the following Statements concerning the justification of the GED test:

> The primary use of the GED tests is to appraise the education development of adults who have not completed their formal high school education. Through achievement of satisfactory scores on the tests, adults may earn a high school equivalency certificate; qualify for admission to college or, in general, for admission to more advanced educational opportunities.[1]

Requirements for taking the GED test. The policy for issuance of the high school certificate based on GED results set forth the following requirements:

1. Minimum test scores: A standard score of 35 or above on each of the five tests and an average standard score of 45 on all five tests.
2. Minimum age: The participant must be eighteen years of age or his class must have graduated.
3. Residence: The participant must have been a resident of the State of North Carolina for at least one year.
4. Previous high school enrollment: Not required.[2]

Validity of the GED test. Norms on both national and regional levels were established in 1943, 1955, and 1967 by the Commission on Accreditation of Service Experience (CASE). The tests were administered to high school seniors. Approximately 20 percent of the seniors failed on each of the three years of testing. The standard score requirement

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[1]Handbook for Official GED Centers: Policies and Procedures for Operation. (Washington, D. C., GED Testing Service of the American Council of Education, 1968), p. 2.

[2]Commission on Accreditation Service Experiences, State Department of Education Policies: Issuance of High School Certificates Based on GED Test Results. Bulletin No. 5 January, 1969, p. 50.

was 35 or above on each test or an average standard score of 45 or above on all five tests.[3]

From 25 to 30 percent of those who took the GED tests failed to achieve the minimum test scores required for the high school equivalency certificate. This number became rather large as the total number of participants increased; for example, in 1959 there were 56,496 persons who took the tests in 660 different testing centers; this number was increased in 1969 to 265,000 persons who were tested in 1,336 centers.[4]

In North Carolina the General Educational Development Curriculum was tested, using students who entered with an average academic level of eighth grade. During a period of 12 to 18 months, 600 students completed their objectives by attending the laboratory approximately four hours per week. Five hundred eighty-eight, or 98 percent, passed all subtests.[5]

Research Literature on Success of GED Recipients. A thorough research of ERIC, Adult Education, Education Index, Dissertation Abstract, and other sources failed to reveal research findings with the exception of Amiel T. Sharon's paper, "The Use and Validity of the GED and CLEP Examinations in Higher Education," based on a comprehensive study by the Commission on Accreditation of Service Experiences to be

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[3]Lee C. Deighton, Editor-in-chief, The Encyclopedia of Education. (New York: MacMillan Company and Free Press), Vol. IV,113.

[4]Ibid. , p. 112.

[5]Learning Laboratories: A North Carolina Community College Educational Innovation. Presented to North Carolina State Board of Education, Raleigh, North Carolina, July, 1971. Pages not numbered.

made available in 1972. Sharon mentioned some of the research findings as indicated in the following five paragraphs.

Thirteen hundred students accepted in a national sample of 34 colleges and universities on the basis of their GED scores are being studied. An in-depth interview was conducted with each of 30 non-high-school graduates. The median age was 28.5. Most were freshmen or sophomores. They were asked why they had dropped out of school. The most frequent replies were to support family, because of boredom, lack of interest, marriage, lack of ambition, and personal problems with the family.

These 30 people were asked why they took the tests. The replies were as follows: to go to college (50 percent), the family urged them to take the tests, or they personally wanted the high school certificate.[6] Most of the students did not deliberately prepare for the GED. Many attributed their success in passing the test to their life experiences such as reading magazines, newspapers, books, or to their limited high school education. Those who did study formally took a special adult education GED course.

Two-thirds stated that the GED certificate did influence their plans for the future.

Successes. Most of the 30 participants studied by Sharon had grade-point averages between B and C. Their course performance in college can be described as fair. Half of the students had higher grade-point averages than the mean grade-point average of all students

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[6]Amiel T. Sharon, "The Use and Validity of the GED and CLEP Examinations in Higher Education," (paper presented at the Annual Convention of the American Personnel and Guidance Association in Atlantic City, New Jersey, 1971), pp. 1-7.

in their college. This level of achievement can be considered quite commendable when the fact that many of the participants had full-time jobs is taken into account. All subjects felt that the GED was of great benefit to them and other non-high school graduates should have the opportunity to take the test.

Failures. Some admitted having academic difficulties in college because of lack of background knowledge from high school, especially in mathematics. Some have withdrawn from college; the reason was most frequently the need to earn money for tuition; however, all have returned or were planning to return and continue their studies.[7]

In the follow-up by Sharon, it was indicated that the average non-high school graduate in college was 28 year old male population who learned about the GED in the armed services. The GED recipient had little or no problem in adjusting; he was more conservative toward certain social issues than those of general college student body. His education consisted of ten years of formal education. His plans were to obtain a bachelor's degree and engage in a business career. In comparing grade-point averages of those groups under 30 with those over 30 who took the GED, there was little difference in the two age groups.[8]

According to the Encyclopedia of Education less than half of the adult population in the United States completed a high school

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[7] Ibid., pp. 8-9

[8] Amiel T. Sharon, "Predicting the College Success of Non-High School Graduates with the Tests of General Education Development," Educational and Psychological Measurement, 32: 1055-1059, Winter, 1972.

education, despite the rapid growth in school enrollment and educational opportunities.[9]

Sittler Associates, reporting for the North Carolina Department of Administration, predicted that between 1966 and 1970 approximately 18,800 persons, 40 percent at age 16, would drop out of high school in the North Carolina Appalachian region, which includes Wilkes County.[10]

Twenty-five percent of the adults over 25 in Wilkes County do not have a high school education.[11] If Wilkes Community College is to serve its constituents, it must provide educational opportunities for this fourth of its population. For some of the adults an injustice will be continued if a high school education is not provided. Realizing its obligation, Wilkes Community College began its General Educational Development program in January, 1967. The curriculum programs did not begin until September, 1967. Since its beginning, Wilkes Community College has provided the opportunity for adults to study for the GED test; however, the College did not become a testing center until 1968.

Since 1966 the Learning Laboratory of Wilkes Community College has had 834 adults to participate in the program, however, two hundred

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[9]Deighton, op. cit., p. 111.

[10]Manpower Education in the North Carolina Appalachian Region Summary Report, Phase I. Prepared for State Planning Task Force, Department of Administration, Raleigh, North Carolina. (Washington: Hammer, Greene, Sittler Associates), pp. not numbered.

[11]Information supplied by the Wilkes Chamber of Commerce, October, 1973.

fourteen adults completed less than 12 hours. Three hundred eleven adults have taken and passed the GED test. Two hundred eighty-nine passed the test at Wilkes Community College after it became a testing center. See Table I, page 14.

The General Education Development Tests have been administered to 409 students at Wilkes Community College. Seventy percent passed. From 1966 through 1968, 22 adults studied in the Learning Laboratory and went to the testing center at Appalachian State University and passed the GED tests. There is no available record of the number who failed. Prior to Wilkes Community College's becoming a testing center, the Personnel Office did not keep records on the GED students. Personnel who taught in the Learning Laboratory prior to 1969 are no longer employees of Wilkes Community College. It was determined that all adults who passed the GED were named in the local newspaper.[12] The names were then verified at the state level in May, 1972.

There has been no study on the GED recipient's success as compared with the traditional high school graduate at Wilkes Community College in the college transfer program, this research committee does indicate the research is a needed one for the College.

V. DEFINITIONS OF TERMS USED

Learning Laboratories. According to Dr. Edward T. Brown, who perhaps more than any other person helped to devise North Carolina's fundamentals learning laboratories in the community colleges, the

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[12] Journal Patriot. North Wilkesboro: Hubbard Printing Company, var. issues, 1966-1968.

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program is "a systems approach to providing the academic knowledge and skills needed or desired by an individual."[13]

Available to adults, most of whom wish to prepare themselves for the high school equivalency examination (GED Tests), the laboratory also is defined as "a unique, self-contained learning environment providing individualized, self-paced instruction."[14] While resource centers, programmed instruction, and self-study programs have long emphasized the self-pacing aspect and may all be regarded as forerunners to a degree, the adult learning laboratory concept is unique in that it stresses comprehensiveness and self-containment. The physical facilities are carefully planned; the materials are available commercially and are generally adequate; and the personnel are expected to possess special training in counseling, materials selection, record keeping, tests and measurements, and educational administration.

The ideal location of a learning laboratory is probably as an appendage to the library of a community college, where proper clientele have already been considered. Minimum equipment and physical facilities, program development, media, student relations, and operation schedules are carefully related to guidelines set forth by the governing authorities. The laboratories are designed to have self-contained, complete units of instruction.[15]

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[13]Edward T. Brown, "North Carolina's Fundamentals Learning Laboratories System," published as "A Community College's Learning Laboratory," in Wilson Library Bulletin, September, 1965.

[14]"Guidelines for Establishing and Operating an Adult Learning Laboratory," (Raleigh: Adult Learning Resources Center, North Carolina State University), 1970, p. 1.

[15]Ibid., var. pp.

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General Educational Development Tests. The GED test is designed to evaluate and acknowledge educational achievement of adults who have not completed their formal high school education. Successful completion of the test battery, which includes English composition, social studies, natural sciences, literature, and mathematics, qualifies the examinee for a high school equivalency certificate. Such a certificate is a legal document acceptable as meeting all high school graduation requirements. Norms vary from state to state depending upon educational standards in a given locale. The test is developed by the Commission on Accreditation of Service Experience (CASE).[16]

Traditional High School Graduate. Student who has received a high school diploma through the traditional approach of attending classes and completing a minimum of sixteen units.

Mathematics 111. A freshman mathematics course that non-science oriented students are required to complete. It is a study of sets, logic, mathematical systems, numeration systems, and properties of real numbers.

English 111. A course in grammar and composition required of both college transfer and technical students in the freshmen year. It aims at eliminating major grammatical errors and developing writing skills, from sentence structure, to paragraph construction, to the whole composition.

Reading Placement Test. The Nelson-Denny Reading Ability Test (Forms A and B), which contains 100 items designed to measure vocabulary and reading comprehension; test scores are indicated by grade

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[16] Cornelius B. Turner, Guide to Evaluation of Educational Experiences in the Armed Forces, (Washington, D. C., American Council on Education, 1968), pp. 111-112.

level, ranging from 7 through 14.

Grade Point Average. Average obtained by equating letter grade with a numerical value: A = 4, B = 3, C = 2, D = 1, F = 0.

VI. LIMITATIONS OF THE STUDY

The study was limited to Wilkes Community College and was the comparison of the GED recipients and the traditional high school diploma graduate from January, 1966 - November, 1972. There was a total of 311 GED recipients. The comparison was limited to those GED recipients who had reading test scores and English 111 and Math 111 on their transcripts. Fifty high school graduates were randomly selected from the remaining college transfer students for the control sample. No current freshmen were included for either comparative group since they did not have grade-point averages for the two subjects. No analysis was made to determine if the compared students were full time or if they were employed. Neither age nor sex was compared.

VII. BASIC ASSUMPTIONS

(1) College entrance requirements include a high school diploma. Sixteen hundred colleges and universities accept the GED.[17] It appears that the GED is equal to the high school diploma. (2) The researchers indicated the GED recipients would score lower and would achieve lower grades for the first quarter of college. Some of the reasons were that the adult had been out of school long enough to forget study habits, skills, and that he was probably a full-time wage earner. (3) The greatest difference was indicated to be in the mathematics comparison of the two groups. Mathematics 111 had some modern mathematical concepts. Modern mathematics was not emphasized in the Learning Laboratory program

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[17] Sharon, loc. cit.

since modern mathematics was being phased out of the GED tests.[18] It is interesting to note, however, that there was no significant difference in either of the three areas that was tested.

VIII. PROCEDURES FOR COLLECTING DATA

In trying to determine the educational success of Wilkes GED recipients, it was necessary for the investigators to gather the data first hand.

Each researcher was responsible for helping to identify GED recipients who enrolled in college courses by locating their names in the files in the personnel office. The researcher began with current files. If the name was not located, he then looked in the inactive and graduate files. If the name did not appear in either of those files, it was assumed that the student did not enroll. From the students' records, the placement scores in reading, and the grades for Mathematics 111 and English 111 were obtained. The sample for the GED recipients was then by those who did have the pertinent data.

Files of the traditional high school graduates who had reading placement scores, grade-point averages for English 111, and grade-point averages for Mathematics 111 were identified. A stratified random sample, using every eighth file, provided data needed for the group of fifty students.

IX. TREATMENT OF DATA

The quasi-experimental research called for three analyses of data

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[18]Statement by Ronald Thomas in GED Test Workshop at Wilkes Community College, Wilkesboro, August, 1973.

to determine if there were significant differences in the mean scores in (1) reading placement grade level, (2) English 111, and (3) Mathematics 111.

After data were collected and organized and the measures of central tendency were found, a frequency distribution chart and a histogram were made for each of the three sets of data (see pp. 41-52). A parametric test, the t - test, was used to analyze each set of comparative data. The test determined there was no significant difference at the .05 level of significance between GED students and traditional high school students in either of the three tested areas: (1) reading placement scores and grade-point averages in English 111 and Mathematics 111.

X. DATA RESULTING FROM THE STUDY

Table 1

Adults Passing GED Test at Wilkes Community College

1969-1973

Year	No. Took GED	No. Passed GED
1966-1968	?	22
1969	15	12
1970	62	41
1971	93	62
1972	151	89
1973	88	85
Total	409	311

Table 2

Grade Distribution of 50 Traditional High School Graduates in English 111

GPA	frequency (f)	percentages
4.00	7	14%
3.00	12	24%
2.00	18	36%
1.00	9	18%
0.00	4	8%
Total	50	100%

Table 3

Measure of Central Tendency of 50 Traditional High School Graduates in English 111

Central Tendency	Measure
Mean	2.18
Median	2.00
Mode	2.00

Standard Deviation (s) = 1.13

$$s = \sqrt{\frac{63.3800}{50}}$$

$$s \approx 1.126$$

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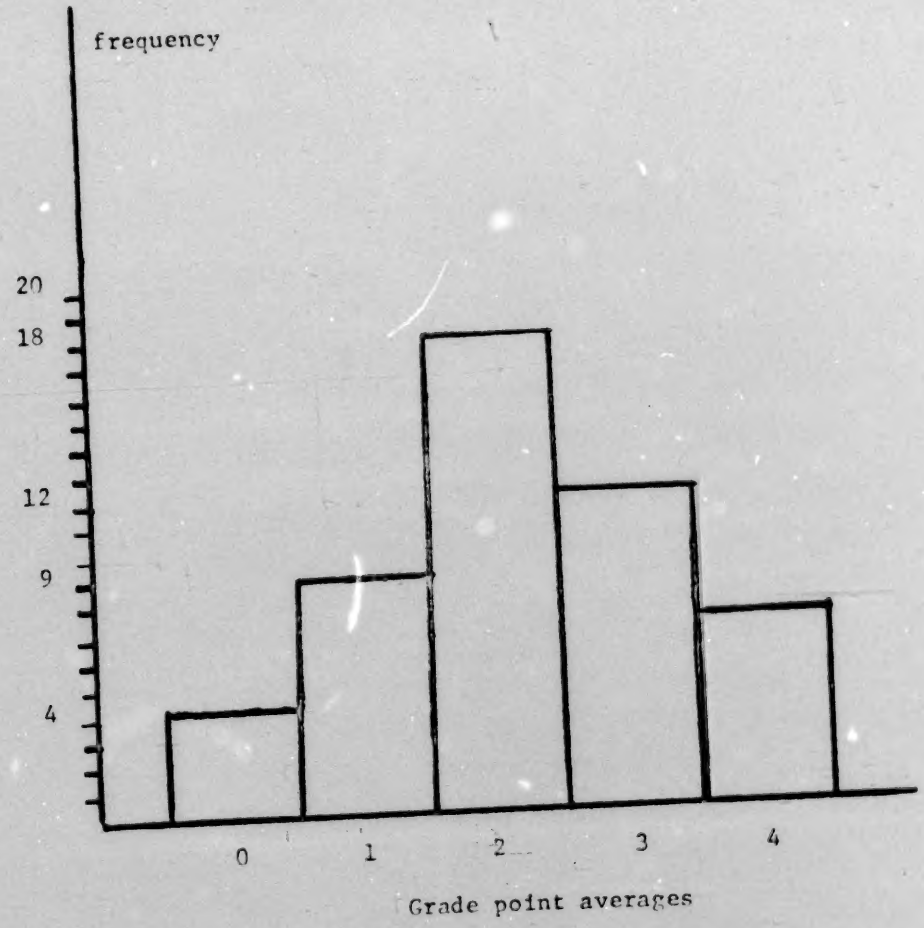

figure 1. Histogram of 50 English 111 Students

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Table

Grade Distribution of 3 GED Recipients in English 111

GPA (x)	Frequency (f)	Percentages
4.00	4	13.33%
3.00	8	26.66%
2.00	11	36.66%
1.00	5	16.66%
0.00	2	6.66%
Total	30	100.00%

Table 5

Measure of Central Tendency of 30 GED Recipients in English 111

Central Tendency	Measure
Mean	2.23
Median	2.00
Mode	2.00

Standard Deviation (s) = 1.09

$$s = \sqrt{\frac{35.3670}{30}}$$

$$s = \sqrt{1.1789}$$

$$s \approx 1.09$$

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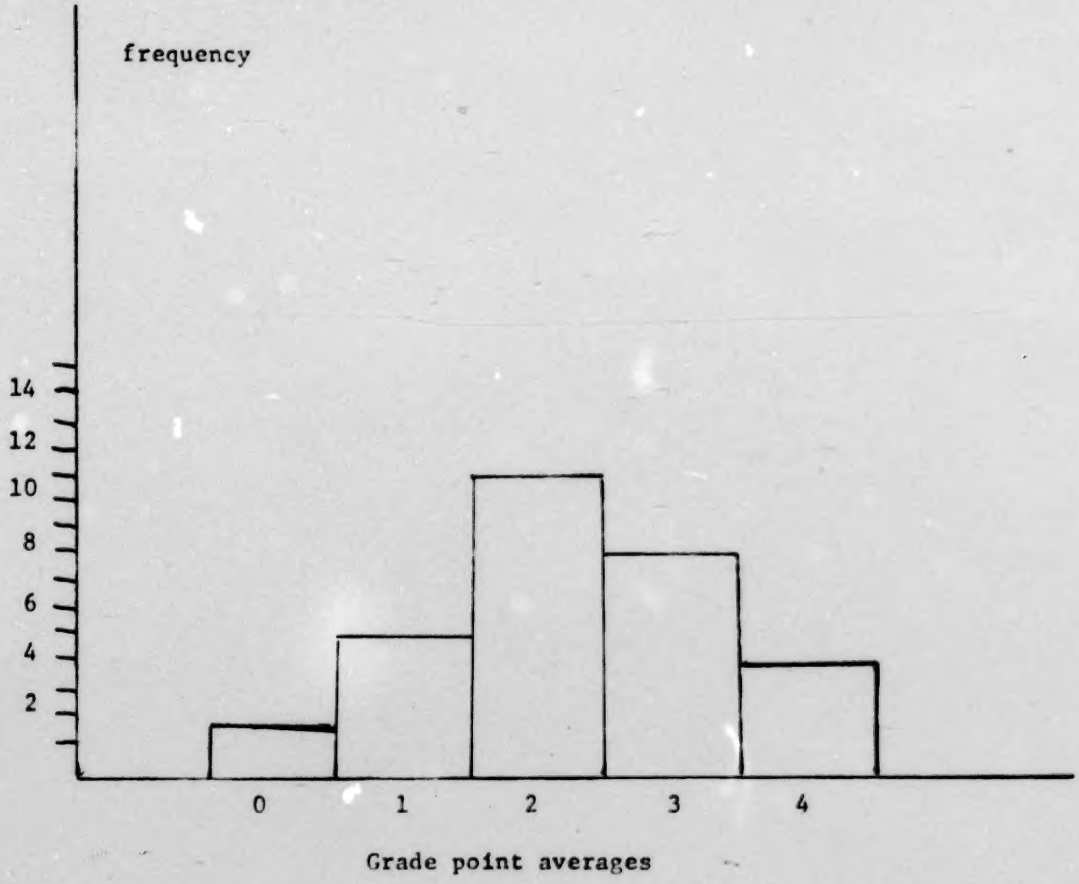

figure 2. Histogram of 30 English 111 Students

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Table 6

Grade Distribution of 50 Traditional High School Graduates in Mathematics 111

GPA (x)	frequency (f)	Percentage
4.00	8	16%
3.00	10	20%
2.00	17	34%
1.00	5	10%
0.00	10	20%
Total	50	100%

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Table 7

Measure of Central Tendency of 50 Traditional High School Graduates in Mathematics 111

Central Tendency	Measure
Mean	2.02
Median	2.00
Mode	2.00

Standard Deviation (s) = 1.32

$$s = \sqrt{\frac{88.9800}{50}}$$

$s \approx 1.32$

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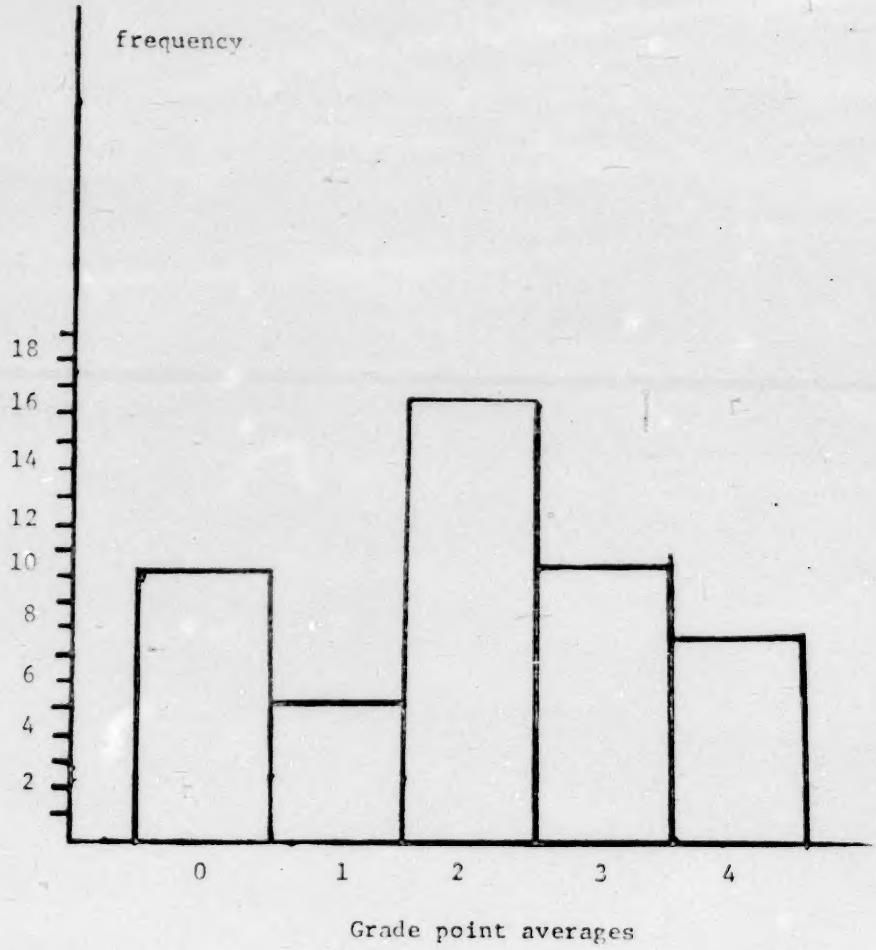

figure 3: Histogram of 50 Traditional High School Graduates in Mathematics 111

Table 8

Grade Distribution of 30 GLD Recipients in Mathematics 111

GPA (x)	frequency (f)	Percentage
4.00	3	10 %
3.00	4	13.3%
2.00	13	43.3%
1.00	8	26.7%
0.00	2	6.7%
Total	30	100 %

Table 9

Measure of Central Tendency of 30 GED Recipients in Mathematics 111

Central Tendency	Measure
Mean	1.93
Median	2.00
Mode	2.00

Standard Deviation (s) = 1.03

$$s = \sqrt{\frac{31.8670}{30}}$$

$$s \approx 1.03$$

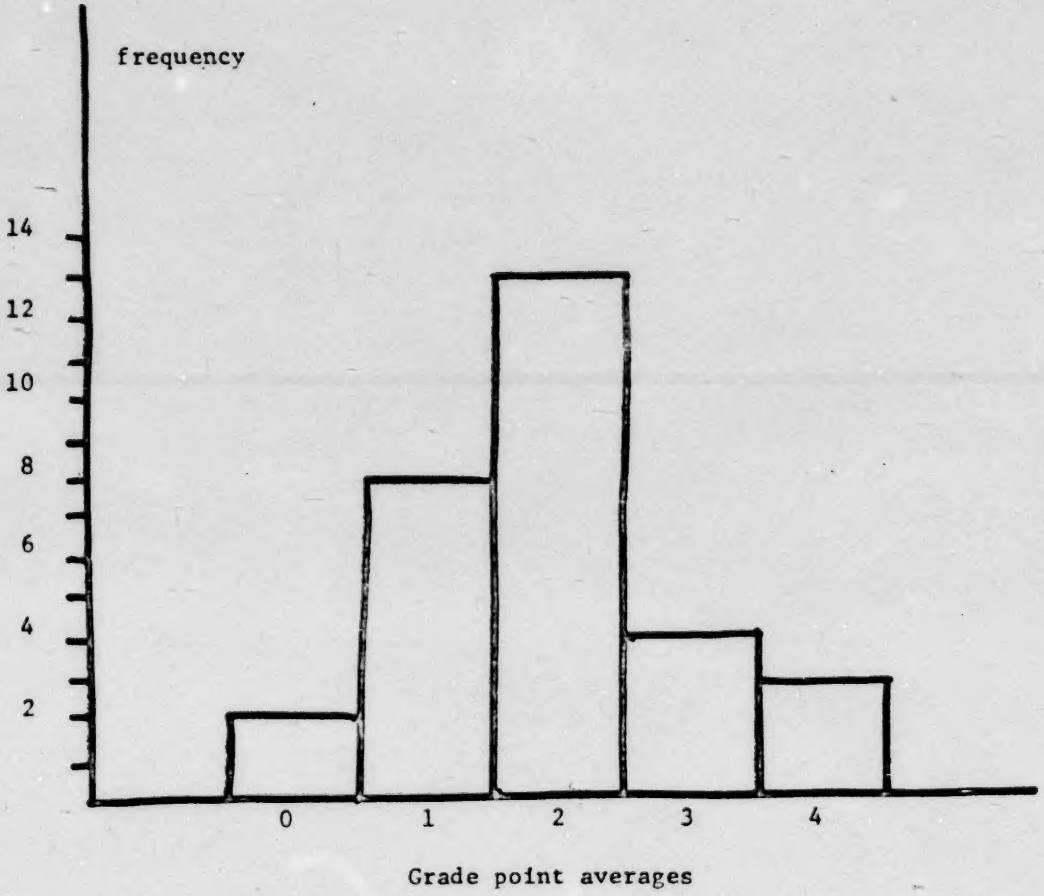

figure 4. Histogram of 30 Mathematics 111 Students

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Table 10

Reading Placement Distribution of 50
Traditional High School Graduates

Grade Interval	Frequency	Percentage
7-7.9	1	2%
8-8.9	2	4%
9-9.9	4	8%
10-10.9	6	12%
11-11.9	5	10%
12-12.9	9	18%
13-13.9	13	26%
14-14.9	10	20%
Total	50	100%

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Table 11

Measure of Central Tendency of 50 Traditional High School Graduates on Reading Placement

Central Tendency	Measure
Mean	12.3
Median	10.95
Mode Mark	13.45
Modal Class Interval	13 - 13.9

Standard Deviation (s) = 1.86

$$s = \sqrt{\frac{173.3800}{50}}$$

$$s \approx \sqrt{3.4676}$$

$$s \approx 1.86$$

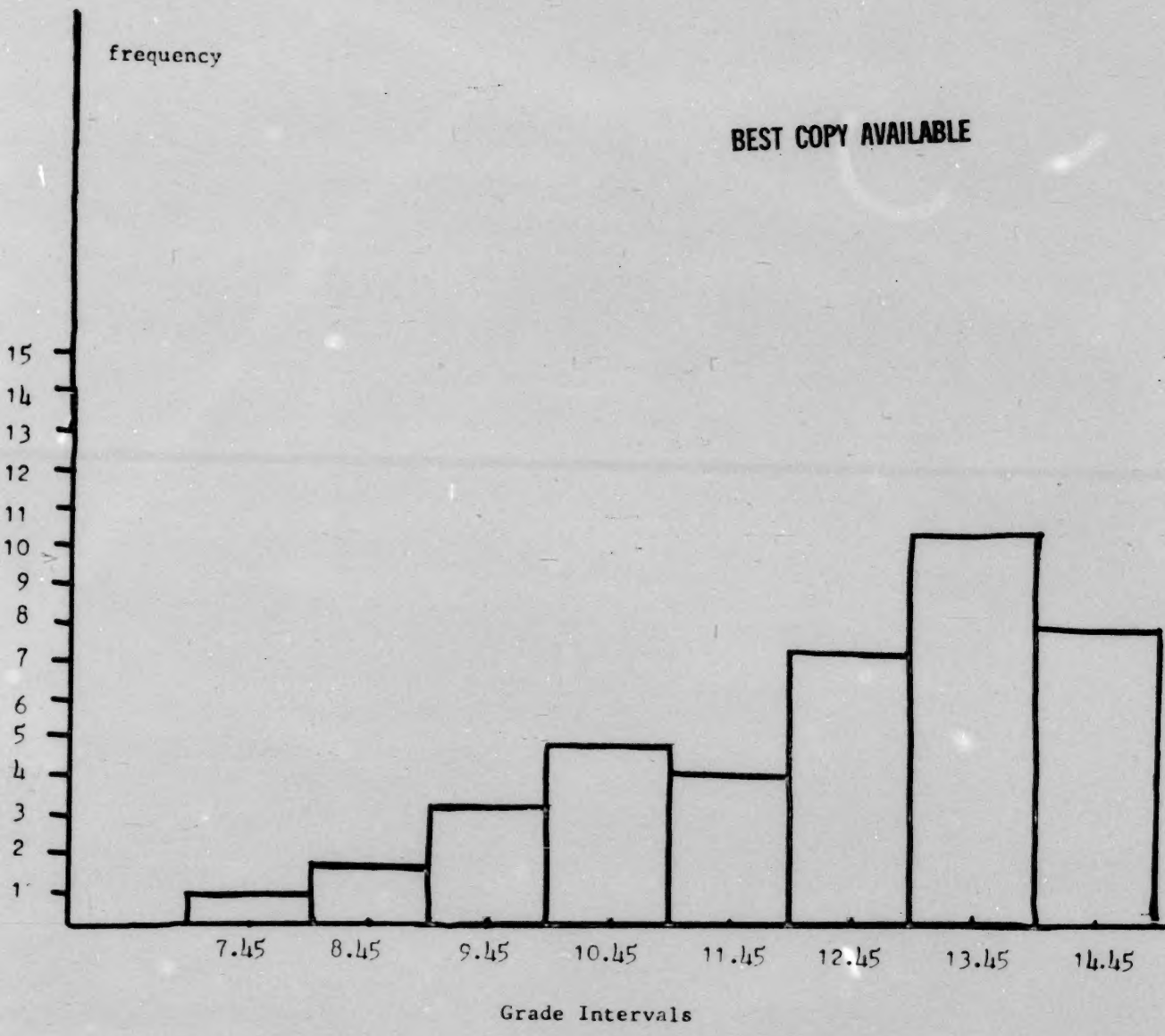

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figure 5. Histogram of Reading Placement Scores for 50 Traditional High School Graduates

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Table 12

Reading Placement Distribution
of 30 GED Graduates

Grade Interval	Frequency	Percentage
7- 7.9	1	3.33%
8- 8.9	1	3.33%
9- 9.9	2	6.67%
10-10.9	3	10.00%
11-11.9	4	13.33%
12-12.9	11	36.67%
13-13.9	5	16.67%
14-14.9	3	10.00%
Total	30	100.00%

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Table 13

Measure of Central Tendency of 30 GED Recipients on Reading Placement

Central Tendency	Measure
Mean	11.98
Median	10.95
Mode Mark	12.45
Modal Class Interval	12.0-12.9

Standard Deviation (s) 1.69

$$s = \sqrt{\frac{85.4670}{30}}$$

$$s = \sqrt{2.8489}$$

$$s \approx 1.69$$

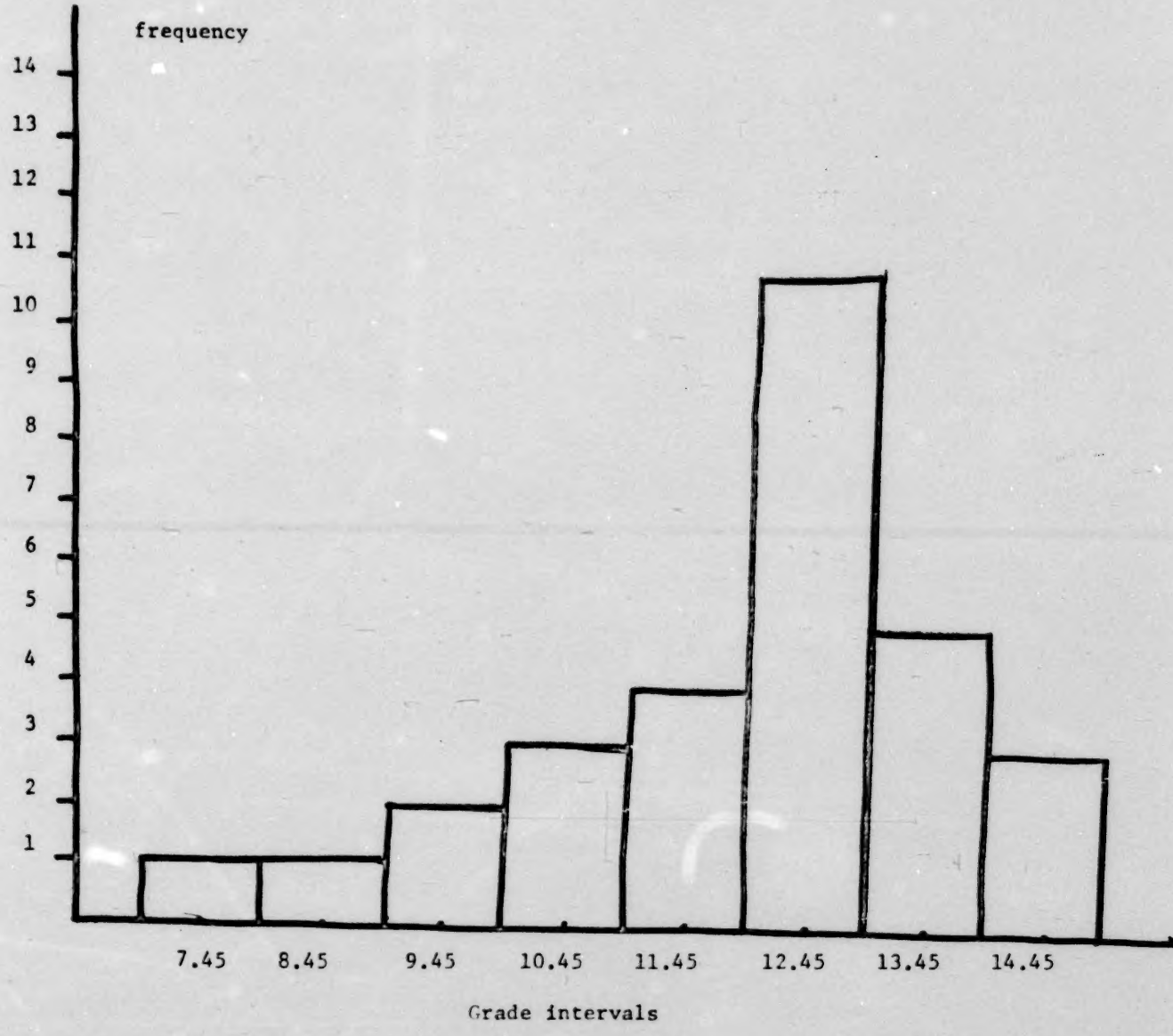

figure 6. Histogram of 30 GED Graduates on Reading Placement

XI. ITEM ANALYSIS

Table 14

Summary of Calculated Values

Problem	t-value for two-tailed test at .05 Level of Significance	Calculated t-value from data
Problem one	-1.96 and 1.96	-.195
Problem two	-1.96 and 1.96	.34
Problem three	-1.96 and 1.96	.79

Problem one

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Problem:

Is there a significant difference in the mean grade point averages in English 111 of the GED recipient as compared to the mean of the grade point averages of students who have high school diplomas?

Ho: There is not a significant difference in grade point averages in English 111 of the GED recipient as compared to students who have high school diplomas.

Ho: $\bar{x}_1 = \bar{x}_2$

Ha: Alternative hypothesis
$\bar{x}_1 \neq \bar{x}_2$

Level of significance .05

Critical t-value:

The critical t-value for a two tailed test is 1.96. Therefore, reject Ho and accept Ha if $t > 1.96$ or $t < -1.96$.

Formula for t-test

$$\frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where $\bar{x}_1 = 2.18$ $\bar{x}_2 = 2.23$
$s_1 = 1.13$ $s_2 = 1.09$
$n_1 = 50$ $n_2 = 30$

$$t = \frac{2.18 - 2.23}{\sqrt{\frac{1.13^2}{50} + \frac{1.09^2}{30}}}$$

$$t = \frac{-.05}{\sqrt{.025538 + .037603}}$$

$$t = \frac{-.05}{\sqrt{.063141}}$$

$$t = \frac{-.05}{.251}$$

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$$t \approx -.195$$

Since the calculated value of t does not exceed the critical value, the null hypothesis cannot be rejected; there is no significant difference between the mean grade point averages of the two groups of students.

Problem 2

Problem: Is there a significant difference in the mean grade point averages in Mathematics 111 of the GED recipients as compared to students who have high school diplomas?

Ho: There is not a significant difference in grade point averages in Mathematics 111 of the GED recipient as compared to students who have high school diplomas.

Ho: $\bar{x}_1 = \bar{x}_2$

Ha: Alternative hypothesis

$\bar{x}_1 \neq \bar{x}_2$

Level of significance: .05

Critical t-value:

The critical t value for a two-tailed test is 1.96. Therefore, reject Ho and accept Ha if $t > 1.96$ or $t < -1.96$.

Formula for t-test.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where $\bar{x}_1 = 2.02$ $\quad \bar{x}_2 = 1.93$
$s_1 = 1.32$ $\quad s_2 = 1.03$
$n_1 = 50$ $\quad n_1 = 30$

$$t = \frac{2.02 - 1.93}{\sqrt{\frac{1.32^2}{50} + \frac{1.03^2}{30}}}$$

$$t = \frac{.09}{\sqrt{.070211}}$$

$$t = \frac{.09}{.265}$$

$$t \approx .34$$

Since the calculated value of t does not exceed the critical value, the null hypothesis cannot be rejected; there is no significant difference between the mean grade point averages of the two groups of students.

Problem three

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Problem: Is there a significant difference in the reading mean grade placement scores of the traditional high school graduate as compared to the GED recipient reading mean grade placement?

Ho: There is not a significant difference in the mean grade placement scores on reading of the GED recipient as compared to students who have high school diplomas.

$\bar{x}_1 = \bar{x}_2$

Ha: Alternative hypothesis

$\bar{x}_1 \neq \bar{x}_2$

Level of significance: .05

Critical t-values:

The critical t-value for a two-tailed test is 1.96. Therefore, reject Ho and accept Ha if $t > 1.96$ or $t < -1.96$.

Formula for t-test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$\bar{x}_1 = 12.3$ $\quad$ $\bar{x}_2 = 11.98$
$s_1 = 1.86$ $\quad$ $s_2 = 1.69$
$n_1 = 50$ $\quad$ $n_2 = 30$

$$t = \frac{12.3 - 11.98}{\sqrt{\frac{1.86^2}{50} + \frac{1.69^2}{30}}}$$

$$t = \frac{.32}{\sqrt{.069192 + .095203}}$$

$$t = \frac{.32}{\sqrt{.164395}}$$

$$t = \frac{.32}{.405} \approx .79$$

Since the calculated value of t does exceed the critical values, the null hypothesis cannot be rejected; there is no significant difference between the means of the reading placement scores of the two groups.

XII. CONCLUSIONS AND RECOMMENDATIONS

XI. CONCLUSIONS AND RECOMMENDATION

GED recipients and the traditional high school graduate were compared (1) to determine if there was a significant difference in their entrance reading grade level, (2) to determine if there was a significant difference in their grade-point averages in English 111 and (3) to determine if there was a significant difference in their grade-point averages in Mathematics 111. In analyzing the mean scores by using the t-test at the .05 level of significance there was no significant difference in the three compared areas.

Based on the researched data the four participants of the study indicated that the traditional high school graduates need reinforcement skills at the same level as the GED recipients. The instructors will, therefore, identify specific skill needs in the three tested areas and the director will provide staff and space for implementing the needs.

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XIV. APPENDIX A

Table 15

Frequency Distribution

Grade Distribution of 50 Traditional High School Graduates in English 111

GPA(x)	frequency (f)	f · x
4.00	7	28
3.00	12	36
2.00	18	36
1.00	9	9
0.00	4	0
Total	50	109

Table 16

Frequency Distribution

Grade Distribution of 30 GED Recipients in English 111

GPA (x)	frequency (f)	f • x
4.00	4	16
3.00	8	24
2.00	11	22
1.00	5	5
0.00	2	0
Total	30	67

Table 17

Grade Distribution of 50 Traditional High School Graduates in Mathematics 111

GPA (x)	frequency (f)	f · x
4.00	8	32
3.00	10	30
2.00	17	34
1.00	5	5
0.00	10	0
Total	50	101

Table 18

Grade Distribution of 30 GED Recipients
in Mathematics 111

GPA (x)	frequency (f)	f • x
4.00	3	12
3.00	4	12
2.00	13	26
1.00	8	8
0.00	2	0
Total	30	58

Table 19

Frequency Distribution

Reading Placement of 50 Traditional
High School Graduates

Grade Interval	Class Mark ($\bar{x}$)	frequency	f • x
7- 7.9	7.45	1	7.45
8- 8.9	8.45	2	16.90
9- 9.9	9.45	4	37.80
10-10.9	10.45	6	62.70
11-11.9	11.45	5	57.25
12-12.9	12.45	9	112.05
13.13.9	13.45	13	174.85
14-14.9	14.45	10	144.50
Total		50	613.50

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Table 20

Frequency Distribution

Reading Placement of 30 GED Recipients

Grade Interval	Class Mark (x)	frequency	f • x
7- 7.9	7.45	1	7.45
8- 8.9	8.45	1	7.45
9- 9.9	9.45	2	18.90
10-10.9	10.45	3	31.35
11.11.9	11.45	4	45.80
12.12.9	12.45	11	136.95
13-13.9	13.45	5	67.25
14-14.9	14.45	3	43.35
Total		30	358.50

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